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TITLE: SEMICONDUCTOR DEVICE HAVING A PLURALITY OF FUSES

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ABSTRACT:

PURPOSE: To minimize damage on a semiconductor at a part other than the fuse blow-out area while preventing blow-out of adjacent fuses.

CONSTITUTION: Fuses 1, 2, 3 arranged side by side are covered with a plate 4 reflecting the laser beam for blowing out the fuse. The plate 4 is provided with beam irradiation windows 12, 22, 32 corresponding to the fuses 1, 2, 3 wherein two adjacent windows 12, 22 and 22, 32 are arranged such that the fuses 1, 2, 3 are exposed partially in the longitudinal direction. The window 12, 22, 32 is then irradiated individually with a laser beam from above a semiconductor device 100 thus blowing out the fuse 1, 2, 3 arranged under the window 12, 22, 32.

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SEMICONDUCTOR DEVICE HAVING MULTIPLE FUSES

EXCERPTS

(0007)

The present invention, to solve the aforementioned problems in the prior art, attempts to present a semiconductor device that can minimize damages to the insulating film other than the fuse blowout area and can prevent the adjacent fuses from being blown out even when the space between the fuses is made narrower, by reducing the size of fuse body.

(0016)

The semiconductor device 100 has the following parameters in its structure.

Fuse width:	2 μm
Space between fuses:	4 μm
Beam radiation port:	4 μm square
Displacement of beam radiation ports in the length direction:	4 μm

Therefore, there is nearly a 4 μm space between the beam radiation ports 22 and 32 (between the top right corner of the beam radiation port 12 and the bottom left

corner of the beam radiation port 22; between the bottom right corner of the beam radiation port 22 and the top left corner of the beam radiation port 32).

(0017)

Suppose, a defect is found in the circuit pattern of the semiconductor memory at a time of inspection therefore the fuses 1 and 2 need to be blown out. In such a case, as shown in Fig. 3 (1), laser beam b1 with diameter $10\text{ }\mu\text{m}$ is radiated by aiming at the center of the beam radiation port 12. Then, the laser beam b1 reaches fuse 1 underneath this beam radiation port 12, and the fuse 12 is blown out. At this time, the laser beam b1 radiated to the reflection plate 4 having no beam radiation port 12 is reflected at the reflection plate 4, therefore, does not reach the insulating film 5 on the substrate.

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